MOBILE6: I/M Commands

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M5 vs. M6 and I/M

- MOBILE5 users should find MOBILE6 I/M modeling easy

- The main concepts are the same, just the format has changed

- MOBILE6 also models some things MOBILE5 didn't
  - Grace periods and exemption ages
  - OBD-I/M checks
  - Customizable IM240 cutpoints
  - Separate I/M description file capability
  - Up to 7 different I/M programs, instead of 2

List of I/M Commands

- I/M PROGRAM
- I/M MODEL YEARS
- I/M VEHICLES
- I/M STRINGENCY
- I/M COMPLIANCE
- I/M WAIVER RATES
- I/M CUTPOINTS
- I/M EXEMPTION AGE
- I/M GRACE PERIOD
- NO I/M TTC CREDITS
- I/M EFFECTIVENESS
- I/M DESC FILE
- ANTI-TAMP PROG

I/M PROGRAM

- This command identifies:

  - The I/M program number (1 - 7)

    - Simultaneous exhaust and evap programs are entered with different program numbers

  - 4-digit start and sunset dates (from 1960 - 2050 for either)

  - Testing frequency (1 = annual, 2 = biennial)

  - Network type (TRC, TRM, T/O)

  - Exhaust type (IDLE, 2500/IDLE, IM240, OBD I/M, ASM 2525, ASM 5015, and ASM 2525/5015)

  - Evap type (EVAP OBD, EVAP OBD & GC, FP & GC, GC)

- Example:
```
I/M PROGRAM                 : 1 1981 2050 2 T/O IM240
I/M PROGRAM                 : 2 1981 2050 2 T/O FP & GC
```

I/M MODEL YEARS

● This command identifies:

    ➤ I/M program number

    ➤ First and last model years covered by the program (in 4 digits, from 1941 to 2050 for both)

● Example:
```
I/M MODEL YEARS    : 1 1996 2050
```

● NOTE: The current draft M6 does not allow MY 1996+ vehicles to be covered by anything but an OBD-I/M check. The final release version of M6 will either correct this or guidance will be provided.

I/M VEHICLES

- This command identifies:

  - ➤ I/M program number

  - ➤ Which of 14 gasoline vehicle types are covered by the program (5 categories for LDGVs and LDGTs, 8 HDGVs, and 1 GAS BUS)

- Example:
  ```
  I/M VEHICLES         :  1 22222 11111111 1
  ```


- NOTE: I/M program number = column 22; 1st LDGV = column 24; 1st HDGV = column 30; GAS BUS = column 39.

I/M STRINGENCY

- This command identifies:
  - ➤ I/M program number
  - ➤ Percent failure rate among pre-1981 model year vehicles (valid: 10.0 to 50.0)

- Example:
  ```
  I/M STRINGENCY    : 1 50.0
  ```

- NOTE: Required for exhaust I/M programs, regardless of MY coverage; do not enter for evap I/M programs.

I/M COMPLIANCE

● This command identifies:

➤ I/M program number

➤ Percent of vehicles subject to the I/M program that
  eventually pass or get a waiver (valid: 50.0 to 100.0)

● <u>Example</u>:
```
I/M COMPLIANCE     : 1 85.0
```

● NOTE: If an exhaust compliance rate entered, M6 will assume
  the same rate for evap unless instructed otherwise. If no
  compliance rate specified for exhaust <u>or</u> evap, M6 assumes a
  default 85% compliance rate for evap.

I/M WAIVER RATES

- This command identifies:

  - I/M program number

  - Percent of initial failures that do not pass test but get a waiver (valid: 0.0 to 50.0)

  - Separate waiver rates for pre-1981 and 1981 and newer vehicles

- Example:
  ```
  I/M WAIVER RATES    : 1 5.0 3.0
  ```

- NOTE: Optional for evap, but M6 assumes default 5% waivers for evap unless overridden by exhaust or specified evap rate.

I/M CUTPOINTS

- This command identifies:

  - ➤ I/M program number

  - ➤ Pathname of external file for IM240 cutpoints

- Example:
  ```
  I/M CUTPOINTS      : 1 C:\MOBILE\CUTPOINT.D
  ```

- NOTE: Only required for IM240 programs. Default IM240 cutpoint files bundled with M6 files (cutpoint.d = phase-in; cutp002.d = final).

I/M EXEMPTION AGE

● This command identifies:

  ➤ I/M program number

  ➤ The age at which vehicles are no longer required to participate in the I/M program (valid: 1 - 25)

● Example:
  ```
  I/M EXEMPTION AGE : 1 21
  ```

● NOTE: If an exemption age is entered for an exhaust program, the same exemption age will be assumed for a comparable evap program unless M6 is instructed otherwise.

I/M GRACE PERIOD

● This command identifies:

➤ I/M program number

➤ The age at which vehicles first become subject to the I/M program (valid: 1 - 25; default: 1)

● Example:
```
I/M GRACE PERIOD    : 1   5
```

● NOTE: If a grace period is entered for an exhaust program, the same grace period will be assumed for a comparable evap program unless M6 is instructed otherwise.

NO I/M TTC CREDITS

- This command identifies:

  - I/M program number

  - The user's decision to turn off the default application of Technician Training Credits (TTC) to the I/M program cited

- Example:
  ```
  NO I/M TTC CREDITS : 1
  ```

- NOTE: This command is an option for exhaust programs only; it should only be used if the program does not conduct and has no plans to conduct a repair technician training program.

I/M EFFECTIVENESS

- This command identifies:

  - ➤ Separate effectiveness rates for HC, CO, and NOx, respectively (default: 100%)

  - ➤ The effectiveness rates apply to all exhaust I/M programs in a given run; no I/M program number is required (or allowed)

  - ➤ The effectiveness rate is expressed as a decimal (i.e., 100% = 1.0, 80% = 0.8, etc.)

- Example:
  ```
  I/M EFFECTIVENESS : 0.80 0.70 0.72
  ```


- NOTE: Required if network type is TRM or TRC.

I/M DESCR FILE

- This command allows users to establish an external file including all the relevant I/M program parameters (with the exception of the ATP program parameters, which are handled separately)

- Example:
  ```
  I/M DESC FILE  : IMTEST.D
  ```

- NOTE: If the I/M description file is not located in the same directory as the M6 executable file, the full pathname must be specified, including drive and all subdirectories.

ANTI-TAMP PROG

- This command is not considered part of the I/M program inputs and does not count as one of the 7 possible I/M programs that can be accommodated in a given run

- This command indicates:

  ➤ Start date of ATP program, followed by first and last model years covered (two-digit years, 1960 - 2050)

  ➤ Which of 14 gasoline vehicle types are covered (2 = covered; 1 = not covered)

  ➤ A MOBILE5 network type artifact, which <u>must</u> be set to 1

  ➤ ATP frequency (1 = annual, 2 = biennial)

  ➤ ATP compliance rate

  ➤ Which of 8 anti-tampering inspections are covered

ANTI-TAMP PROG (Cont.)

● The available anti-tampering inspections are:

  ➤ Air pump disablement

  ➤ Catalyst removal

  ➤ Fuel inlet restrictor disablement

  ➤ Tailpipe lead test

  ➤ EGR disablement

  ➤ Evap system disablement

  ➤ PCV system disablement

  ➤ Missing gas cap

● Example:
```
ANTI-TAMP PROG    :
83 75 50 22222 22222222 2 11 096. 22222222
```

Remote Sensing?

- MOBILE6 does not currently accommodate RSD modeling for either dirty or clean screening programs

- EPA will develop "outside-the-model" guidance to address the RSD credit issue in the near future